



TEAMCENTER

**Semiconductor
Lifecycle
Management —
Deployment**

Teamcenter 2412

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1. What is Teamcenter Semiconductor Lifecycle Management?

As the challenges facing the semiconductor industry increase in complexity, so does the design of the semiconductor devices that address them. Using Teamcenter Semiconductor Lifecycle Management software, you can track the complete product lifecycle and manage all metadata in a unified environment. Using a preconfigured semiconductor design and manufacturing BOM, you can streamline processes, workflows, and collaboration between designers and manufacturers to ensure data quality and compliance.

The solution focuses on the following three key aspects of the silicon lifecycle from design to manufacturing:

- New Product Introduction (NPI) manages the product delivery and spans the entire process from requirements capture to final product delivery.
- IC Design focuses on managing the Integrated Circuit (IC) design process and artifacts.
- IC Manufacturing focuses on the IC front-end and back-end manufacturing planning to enable foundry and back-end operations.

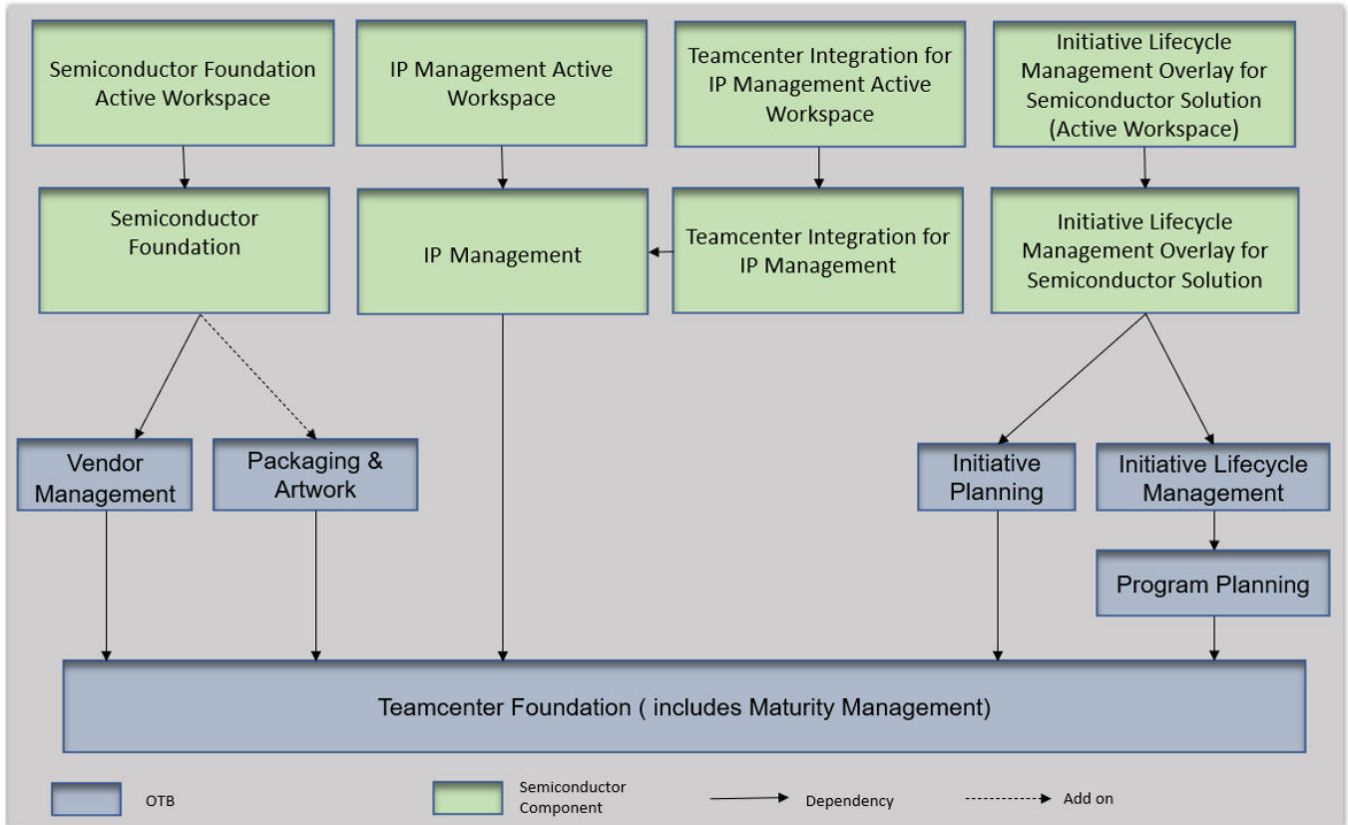
Where do I go from here?

 Business User	To manage the semiconductor design and manufacturing process and data, see Semiconductor Lifecycle Management — Usage .
 Administrator	
How do I install the Semiconductor Lifecycle Management solution using Deployment Center?	Refer to these installation steps to update your Teamcenter environment with the Semiconductor Lifecycle Management solution using Deployment Center.
What are some preferences that I can update to control behavior specific to the Semiconductor Lifecycle Management solution?	After installation is complete, there are several preferences to consider when configuring the Semiconductor Lifecycle Management solution.

2. Installation overview

Semiconductor Lifecycle Management can be installed into an existing environment that is running a supported version of Teamcenter. The solution is installed using **Deployment Center**. All required templates, data, and additional features, such as Program Planning, are installed with the Semiconductor Lifecycle Management solution.


3. Components and layers



4. Install using Deployment Center

Install Semiconductor Lifecycle Management using Deployment Center

Add Semiconductor Lifecycle Management to your existing Teamcenter environment through a series of tasks from selecting applications and entering configuration parameters to generating and running deployment scripts.

1. Log on to Deployment Center and select the environment to which you want to add Semiconductor Lifecycle Management.
2. Go to the **Applications** tab. Click **Add or Remove Selected Applications** .
3. In the **Available Applications** panel, use the web browser search to find and select the appropriate applications for installing the desired Semiconductor Lifecycle Management solution bundles based on the following table:

Solution Bundle	Applications
Semiconductor Foundation	Semiconductor Foundation
New Product Introduction	Initiative Lifecycle Management Overlay for Semiconductor Solution
Functional Safety	Functional Safety Analysis for Semiconductor Devices
IC Design	IP Management
IC Manufacturing	Consumer Packaged Goods > Consumer Products and Retail Foundation Consumer Packaged Goods > Packaging and Artwork <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>Note: These two applications are automatically selected when the Semiconductor Foundation application is selected.</p></div>
Methodics Integration	Teamcenter Integration for IP Management <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>Note: Install Active Integration Gateway to use T4EA for integration with Methodics.</p></div>
Reliability Testing	MBSE A La Carte > Parameter Management MBSE A La Carte > Requirements Management

Solution Bundle	Applications
	MBSE A La Carte > Test and Verification Management

Deployment Center automatically selects any additional dependent applications.

- Select additional prerequisite applications from the following table based on the Semiconductor applications you are installing.

Semiconductor Lifecycle Management solution prerequisites	
	Audit Markup <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Note: Markup is automatically selected when the Requirements Management application is selected.</p> </div> Product Configurator Product Configurator Support for Active Content Structure Requirements Management
Easy Plan	Process Planning for BTO/BTS/CTO
Enterprise Knowledge Foundation	Dispatcher Client for Rich Client
Extensions	Dispatcher Product Configurator Product Configurator Support for Structure Manager
Manufacturing Process Management	Work Instructions
Reuse and Standardization	Library Management

- Click **Update Selected Applications**.
- Go to the **Components** tab, and in the **Selected Components** list, note any components whose configuration status is not **100%**. Select each incomplete component, enter required parameters, and save component settings until all components in the environment show a configuration status of **100%**.

When all components are fully configured, the **Deploy** tab is enabled.

- When you finish entering values for the incomplete components, click **Save Component Settings**.

- Go to the **Deploy** tab. Click **Generate Install Scripts** to generate deployment scripts you will use to update affected machines.

When script generation is complete, note any special instructions in the **Deploy Instructions** panel.

- Locate deployment scripts, copy each script to its target machine, and then run each script on its target machine.


For more information about running deployment scripts, see *Deployment Center — Usage*.

Install Active Integration Gateway

Note:

Before you begin, check version **compatibility** between Teamcenter and Active Integration Gateway (T4EA).

To deploy T4EA using Deployment Center:

- Download and extract Active Integration Gateway and Teamcenter Gateway for Enterprise Application kits to your Deployment Center repository location. Select the version in accordance with your Teamcenter platform version.
- Start Deployment Center and ensure the Active Integration Gateway and Teamcenter Gateway for Enterprise Applications products are visible under the **SOFTWARE REPOSITORIES** tile.
- From the **Environments** tile, navigate to the location of your environment.
- Go to the **Software** tab. Select **Active Integration, Active Integration for Active Workspace, Active Integration Gateway Foundation Services, Active Integration Gateway ITK for TC <version>, Integration Gateway T4EA, and Teamcenter Gateway for Enterprise Applications** from the **Available Software** panel, and then click **Update Selected Software**.
- Go to the **Applications** tab. Click **Add or Remove Selected Applications** .
- In the **Available Applications** panel, use the web browser search to find and select the following applications:
 - Gateway Service – Basis**
 - ITK**
 - T4EA Gateway Service**
 - Teamcenter Gateway for Enterprise Applications**

Deployment Center automatically selects any additional dependent applications.

7. Click **Update Selected Applications**.
8. Go to the **Components** tab.
9. Configure the AIG components:
 - a. In the **Selected Components** list, select Basic Gateway Service (BGS).
 - b. In the Basic Gateway Service (BGS) panel, enter values for the configuration parameters.

The screenshot displays the Deployment Center interface. At the top, there are navigation tabs: 'Deploy Software', 'Overview', and a progress bar with steps: '1 Software', '2 Options', '3 Applications', '4 Components', and '5 Deploy'. The '4 Components' step is active.

The 'Selected Components' list on the left contains various applications. The 'Basic Gateway Service (BGS)' component is selected and highlighted in blue. The configuration panel for this component is shown on the right.

Component Name	ID	Progress	Path
Active Workspace Client Builder	VC65012	100%	C:\apps\tc\14\
Active Workspace Gateway	VC65012	100%	C:\apps\tc\14\
Basic Gateway Service (BGS)	VC65012	100%	C:\Siemens\Teamcenter\14\AIG
Business Modeler IDE Standalone	VC65012	100%	C:\apps\tc\14\
Capital Asset Lifecycle Management Integration	VC65012	100%	C:\apps\tc\14\
Command Prediction Service Configuration	VC65012	100%	C:\apps\tc\14\
Corporate Server	VC65012	71%	C:\apps\tc\14\
Database Daemon	VC65012	100%	C:\apps\tc\14\
Database Server	VC65012	100%	C:\apps\tc\14\
Dispatcher Client (4-tier)	VC65012	100%	C:\apps\tc\14\
Dispatcher Module	VC65012	100%	C:\apps\tc\14\
Dispatcher Scheduler	VC65012	100%	C:\apps\tc\14\
Document Management Teamcenter Client PDF Sign (Mass Client)	4Tvc65012	100%	n/a
Eventing Service		Start	
External Application Data Extractors	VC65012	100%	C:\apps\tc\14\
FSC	VC65012	100%	C:\apps\tc\14\
FSC Group	fsc	100%	

The configuration panel for 'Basic Gateway Service (BGS)' includes the following fields:

- Status:** Pending install
- Target machine:** Machine Name: vc65012, OS: win64
- AIG Installation Path:** C:\Siemens\Teamcenter\14\AIG
- BGS Port Numbers:** BGS Port Number: 11300, Admin UI Port Number: 11320
- Licensing:** License Server: pncstfext, License Server Port Number: 28000

- c. When you finish entering values for the Basic Gateway Service (BGS) component, click **Save Component Settings**.
- d. In the **Selected Components** list, select Gateway Service (GS).
- e. In the Gateway Service (GS) panel, enter values for the configuration parameters.

The screenshot shows the 'Deploy Software' interface with the '4 Components' step selected. The 'Selected Components' list includes various services, with 'Gateway Service (GS)' highlighted. The configuration panel for 'Gateway Service (GS)' is open, showing the following details:

- Status:** Pending Install
- Target machine:** Machine Name: vc65012, OS: win64
- AIG Installation Path:** C:\Siemens\Teamcenter14\AIG
- Port Numbers:** Admin UI Port Number: 11321, GS Port Number: 11301

- f. When you finish entering values for the Gateway Service (GS) component, click **Save Component Settings**.
- g. In the **Selected Components** list, note any remaining components whose configuration status is not **100%**. Select each incomplete component, enter required parameters, and save component settings until all components in the environment show a configuration status of **100%**.

When all components are fully configured, the **Deploy** tab is enabled.

10. Go to the **Deploy** tab. Click **Generate Install Scripts** to generate deployment scripts you will use to update affected machines.

When script generation is complete, note any special instructions in the **Deploy Instructions** panel.

11. Locate deployment scripts, copy each script to its target machine, and then run each script on its target machine.

For more information about running deployment scripts, see *Deployment Center — Usage*.

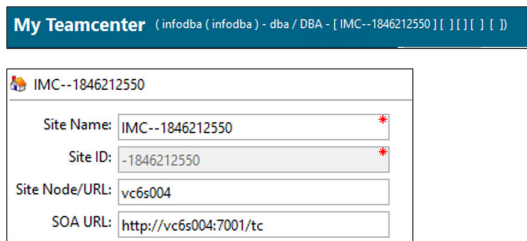
5. Post install steps

Organization changes

Update site information

Update the site URL to the web tier Teamcenter URL, for example, **http://servername:port_number/context_name**.

1. In the Teamcenter Organization application, select a site.
2. Type a site name in the **Site Name** box and the web tier URL in the **SOA URL** box.

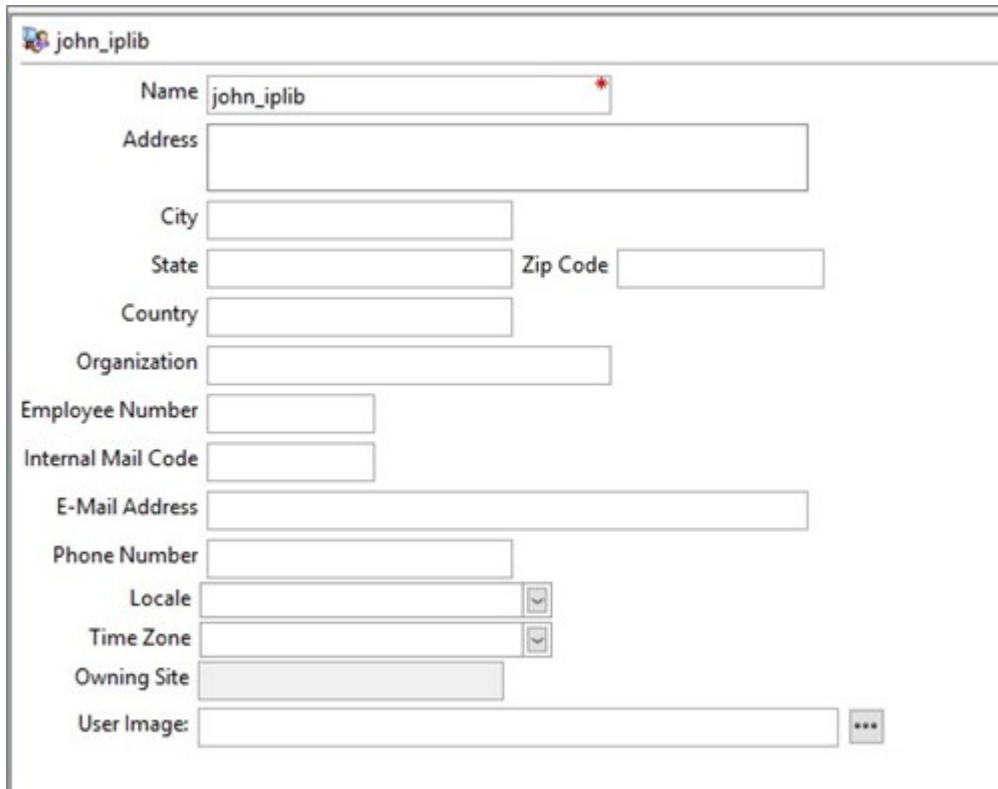


The screenshot shows the 'My Teamcenter' application interface. At the top, there is a blue header bar with the text 'My Teamcenter (infodba (infodba) - dba / DBA - [IMC--1846212550] [] [] [])'. Below the header, there is a form with the following fields:

IMC--1846212550	
Site Name:	IMC--1846212550 *
Site ID:	-1846212550 *
Site Node/URL:	vc6s004
SOA URL:	http://vc6s004:7001/tc

Update IP Librarian user

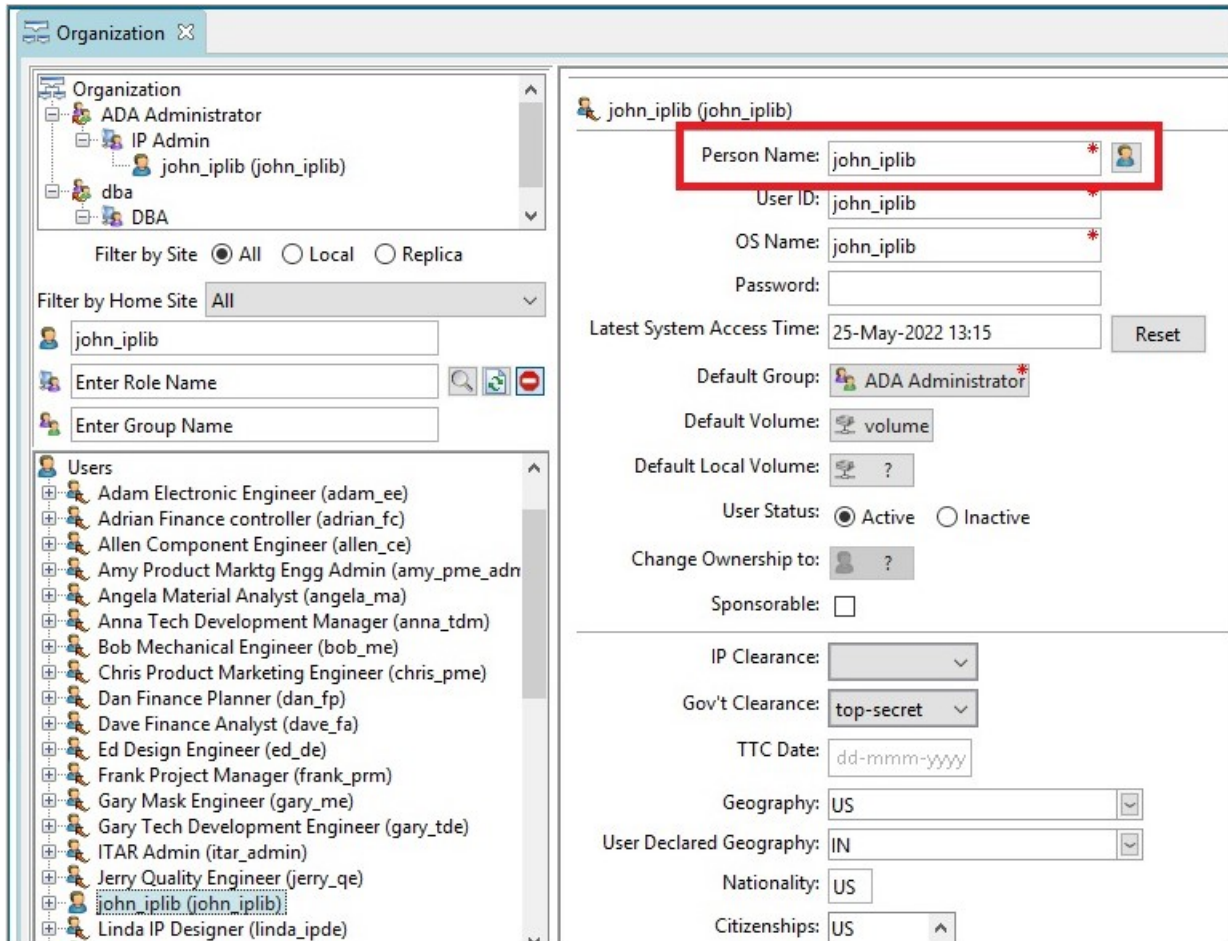
1. In the **Organization** application, create a new IP Librarian user.



The screenshot shows a user profile form for 'john_iplib'. The form contains the following fields:

- Name: john_iplib
- Address: [Empty text box]
- City: [Empty text box]
- State: [Empty text box]
- Zip Code: [Empty text box]
- Country: [Empty text box]
- Organization: [Empty text box]
- Employee Number: [Empty text box]
- Internal Mail Code: [Empty text box]
- E-Mail Address: [Empty text box]
- Phone Number: [Empty text box]
- Locale: [Dropdown menu]
- Time Zone: [Dropdown menu]
- Owning Site: [Empty text box]
- User Image: [Empty text box with a three-dot menu icon]

2. Search for and select the IP Librarian user, and then update the **Person Name**.

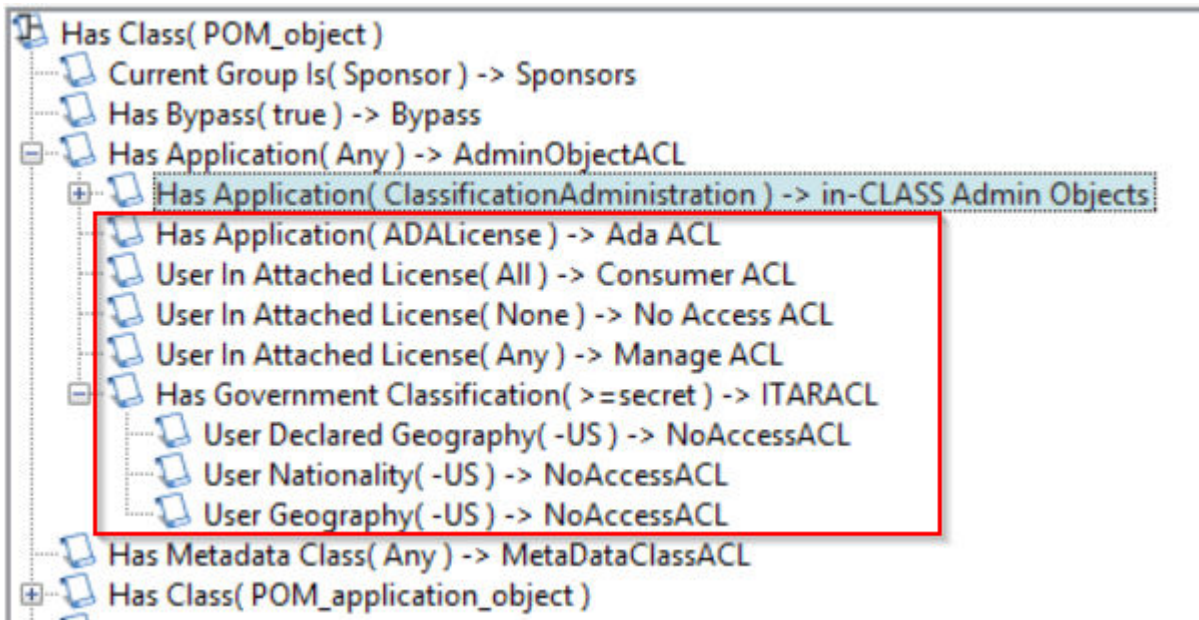


Update access control

1. Log into the Teamcenter rich client as an administrator and open the Access Manager application.
2. Create the ACLs shown below to support ITAR configurations. Be sure to add these ACLs immediately below the **Has Application (ClassificationAdministration) -> in-CLASS Admin object** in the ACL tree.

Note:

If accessor /roles are not available, then you must create them manually.



- ACL Name: **Ada ACL**

Type of Accessor	ID of Accessor	Grant	Deny
Group	ADA Administrator	<ul style="list-style-type: none"> Read Write Delete Change Copy Administer ADA Licenses Create 	

- ACL Name: **Consumer ACL**

Type of Accessor	ID of Accessor	Grant	Deny
User Under Government Clearance			Read
User Has Government Clearance		Read	
User Over Government Clearance		Read	

Type of Accessor	ID of Accessor	Grant	Deny
Role in Owning Group	IP Admin	· Unmanage · IP Admin · ITAR Admin	
Role in Owning Group	ITAR Admin	· Unmanage · IP Admin · ITAR Admin	

- ACL Name: **No Access ACL**

Type of Accessor	ID of Accessor	Grant	Deny
Role in Owning Group	IP Admin	· Unmanage · IP Admin · ITAR Admin	
Role in Owning Group	ITAR Admin	· Unmanage · IP Admin · ITAR Admin	
World			Read

- ACL Name: **Manage ACL**

Type of Accessor	ID of Accessor	Grant	Deny
User Under Government Clearance			Read
User Has Government Clearance			Read
User Over Government Clearance			Read
Role in Owning Group	IP Admin	· Unmanage · IP Admin · ITAR Admin	
Role in Owning Group	ITAR Admin	· Unmanage · IP Admin	

Type of Accessor	ID of Accessor	Grant	Deny
		ITAR Admin	
World			Read

- ACL Name: **ITARACL**

Type of Accessor	ID of Accessor	Grant	Deny
User Under Government Clearance			Read
User Has Government Clearance		Read	
User Over Government Clearance		Read	
Role in Owning Group	IP Admin	Unmanage IP Admin ITAR Admin	
Role in Owning Group	ITAR Admin	Unmanage IP Admin ITAR Admin	
World			Read

- ACL Name: **NoAccessACL**

Type of Accessor	ID of Accessor	Grant	Deny
World			Read

Preference changes

1. Set the classification preferences.

Update the preference values to **true** for the following classification preferences:

- **CLS_is_presentation_hierarchy_active**
- **CLS_auto_sync_node_hierarchy**
- **ICS_searchindex_view_visible**

- Run the **clsutility** utility to update existing classes with presentation layer classification.

```
clsutility.exe -u=<user-id> -p=<password> -g=<group> -import
-hierarchy -cid=ICM -include_instances
```

- Set the reliability testing preferences.

Update the preference values to **true** for the following preferences:

- **PLE_Parameter_Create_With_Definition_Ux**
- **PLE_Parameter_Create_With_Application_Ux**

- Set test kit BOM validation preferences.

- Update the **SUBSCMPLAW_ComplianceCheck_Command_SupportedTypes** preference by appending the following value:

Sfd0PackageKitRevision

Note:

This preference only needs to be updated if Substance Compliance functionality is being used.

- To allow sharing a safety goal across multiple HARA analyses for the same part, set the **Fs0Allow_SafetyGoal_On_MultipleHARA** preference value to **true**.

Note:

Sharing a safety goal across multiple HARA analyses for different parts is always prohibited.

- Set the advanced packaging preferences.

- Update the **TCAIAllowedChildTypes_<Object_Type>** preference to choose the object types listed in the create panel.
- Update the **Sfd0_Auto_Classification_Class_Ids** preference to define the mapping of attribute value and the classification class IDs used for automatically classifying an object at creation.

If changes are made to the allowable child types, you must also update the relevant verification rule.

Condition Name	Object Type
Sfd0BOMValidationConditionForInterposerAssembly	Sfd0IntposerAsm
Sfd0BOMValidationConditionForDieKit	Sfd0DieKit
Sfd0BOMValidationConditionForPackageKit	Sfd0PackageKit

Post install steps for Easy Plan

- Remove the existing values and add the following values to the **EP_SearchSubtypesForMbom** preference:
 - Sfd0SingulatdDieRevision**
 - Sfd0AssemblyPartRevision**
- Remove the existing values and add the following values to the **EP_ProcessPageTabProcessAreaColumnConfiguration** preference:
 - ImanItemBOPLine.bl_sequence_no**
 - ImanItemBOPLine.bl_quantity**
- Remove the existing values and add the following values to the **EP_SearchSubtypesForEbom** preference:
 - Sfd0DieDesignRevision**
- Remove the existing values and add the following values to the **EP_WorkPackageContentType** preference:
 - Product:Item**
 - Plant:Item**
 - PlantBOP:Item**
- Set the **EP_PlanningForSmallProduct** preference to **True**.
- Set the **EP_ShowOnlyEWI** preference to **False**.
- Set the **EP_EnableLineBalancing** preference to **False**.
- Install the **New Work Package** tile for Semiconductor workspaces.

- a. Locate the *Sfd1semiconductorfoundationawTilesCots_Install.xml* file in the Teamcenter kit location, *tc\sfd1semiconductorfoundationaw_samples\samples*.
- b. In a TC command prompt window, run the following command:

```
aws2_install_tilecollections -u=<user-id> -p=<password>
-g=<group> -mode=add -file=<DIRECTORY_OF_TC_KIT>/tc/
sfd1semiconductorfoundationaw_samples/samples/
sfd1semiconductorfoundationawTilesCots_Install.xml
```

Note:

You must be an administrator to run this command.

Sample class hierarchy

Note:

This task is optional.

Create a sample class hierarchy using the sample classification data provided with the foundation kit. Follow the instructions available at the following locations:

- in the *README.txt* file located at *\${TC_INSTALL_DIR}/sfd1semiconductorfoundationaw/samples*
- in the Teamcenter kit located at *tc\sfd1semiconductorfoundationaw_samples\samples*

Post install steps for T4EA

1. Update **HOST** with the full computer name in the *%GS_ROOT%\var\conf\tpds.overlay* and *%BGS_ROOT%\var\conf\tpds.overlay* files.
2. Open a Teamcenter command prompt, go to the *%BGS_HOME%\bin64* directory, and run the **initpassword.exe** command to set the administrator password.

In this example, the default admin user **t4adm** is used with a password of **t4adm**.

```

C:\apps\Siemens\ActiveIntegration\bgs\bin64>initpassword.exe
Copyright (c) 2019-2020 Siemens Product Lifecycle Management Software Inc. All rights reserved

    Password initializer for PL4x v0.0.8 6681

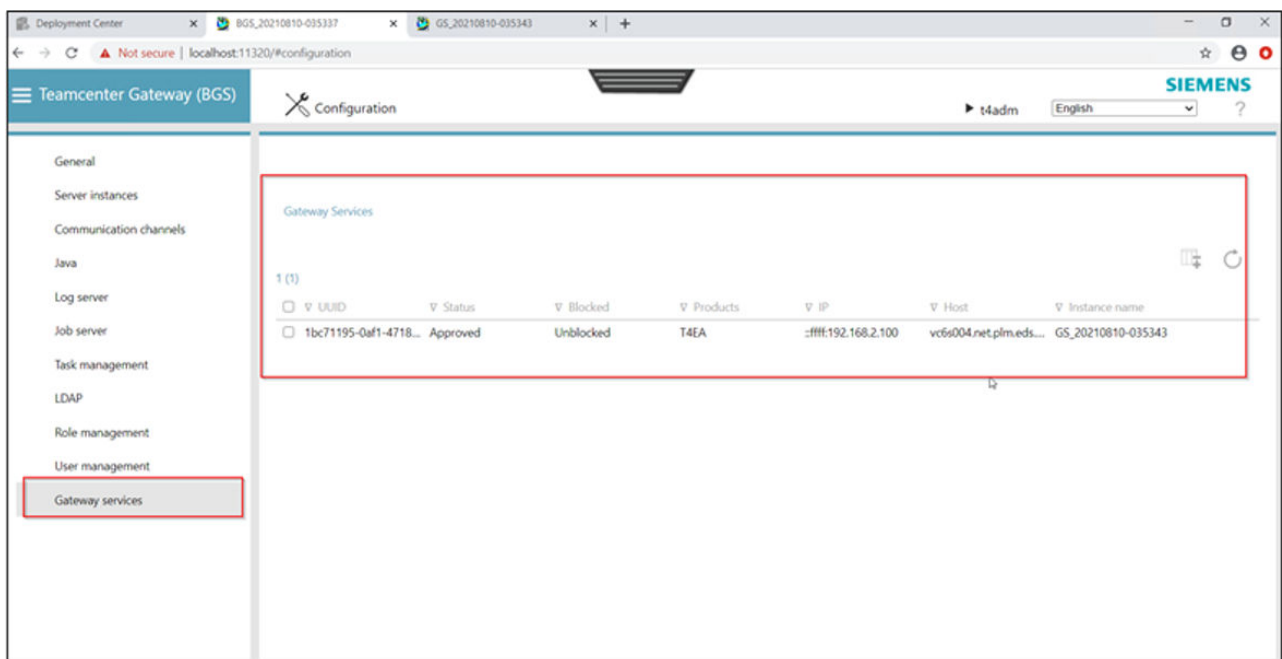
    Password must be passed via the environment variable T4ADM_SECRET or entered on the console

2021/08/10 06:55:10 Set up logging into 'C:\apps\Siemens\ActiveIntegration\bgs\tmp\initpassword.log' and the console.
Enter password (will not be shown): *****
Repeat password: *****
2021/08/10 06:55:25 UUID path: C:\apps\Siemens\ActiveIntegration\bgs\var\conf\uuid
2021/08/10 06:55:25 Created a new UUID
2021/08/10 06:55:25 Serving at address: 127.0.0.1:11399
2021/08/10 06:55:28 Starting to serve...
2021/08/10 06:55:28 Please start the BGS within 60 seconds now
2021/08/10 06:55:42 Password fetched by 'd9cbab53-bced-4825-a4a7-09e6749e9f9c' @ 127.0.0.1:64150. Exiting...

C:\apps\Siemens\ActiveIntegration\bgs\bin64>_

```

3. Start services of Teamcenter Gateway (BGS) and Gateway Services (GS) from %GS_ROOT%\bin64 and %BGS_ROOT%\bin64 by running **start.exe**.
 - Go to the BGS login using **https://localhost:11320** and the GS login using **https://localhost:11321**. Log in with **t4adm** for the username and password.
4. Go to BGS, select the configuration, and click **Gateway services**. Confirm that the gateway service status is **Approved**.



Enable T4EA – Teamcenter integration flow

1. For a 2-tier client, edit the %TC_ROOT%\iiopservers\start_TcServer1.bat file and add an entry of **t4x_env.bat**.

```

22 Rem Begin
23 call %TC_DATA%\tc_profilevars
24 if not defined Transient_Volume_RootDir set Transient_Volume_RootDir=%USERPROFILE%\Local Settings\Temp\TransientDir
25 if not exist "%Transient_Volume_RootDir%" mkdir "%Transient_Volume_RootDir%"
26
27 call E:\apps\Siemens\ActiveIntegration\gs\etc\t4x_env.bat
28
29 Rem OK, now start it.
30 %TC_ROOT%\bin\tcserver.exe -ORBInitRef ImplRepoService=corbaloc:iiop:localhost:1572/ImplRepoService id=TcServer1 useImR -ORBUseImR 1
31 goto :EOF
32
33 !TCROOT_error
34 echo *** ERROR ***
35 echo TC_ROOT does not exist or is NOT valid.

```

- For a 4-tier client, edit the %TC_ROOT%\pool_manager\conf\stcenv.bat file and add an entry of t4x_env.bat.

```

51 rem consumes the output. For debug purpose you may want to redirect the output to a file.
52 call "%TC_DATA%\tc_profilevars.bat" > nul
53 ) else (
54 echo "%TC_DATA%\tc_profilevars.bat" not found when executing tcenv.bat >& 2
55 )
56
57 call E:\apps\Siemens\ActiveIntegration\gs\etc\t4x_env.bat
58
59 rem Indicate TC servers should exit for POM initialization errors
60 set TC_EXIT_FOR_POOL=1

```

Ensure that the t4x_env.bat file is located at %GS_ROOT%\etc.

Note:

These paths change based on the Active Integration (BGS and GS) Installation directory.

- Edit the %GS_ROOT%\var\conf\script\t4xcust.bat and %BGS_ROOT%\var\conf\script\t4xcust.bat files and enable Teamcenter and T4EA variables as shown.

```

REM EXAMPLE tc_profilevars call
REM IF NOT "x%TC DATA MODEL%" == "x" goto pl
set TC_ROOT=C:\apps\Siemens\Teamcenter13\TR
set TC_DATA=C:\apps\Siemens\Teamcenter13\TD
call %TC_DATA%\tc_profilevars.bat
REM :pl
REM

```

Note:

These paths change based on the Teamcenter installation directory.

```

REM
set TP_T4XINSTL=E:\apps\Siemens\ActiveIntegration\gs

REM Please use bin32 if the Teamcenter server is using the 32 bit
REM otherwise use the bin64 in the PATH definition

REM set PATH=%TP_T4XINSTL%\bin32;%PATH%
REM or
set PATH=%TP_T4XINSTL%\bin64;%PATH%

REM SET USER TEMP DIRECTORY
set TP_UTMP=%TEMP%

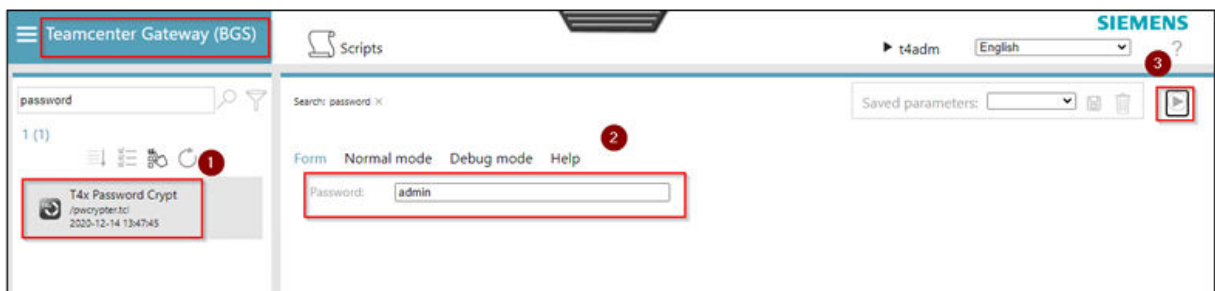
REM optional - activated extended itk pipe debugging
REM not for production environments
set TP_PIPEDEBUG=1

```

Remove T4EA mapping files

Navigate to the GS mapping files directory (%GS_ROOT%\var\mmap) and delete all out-of-the-box files.

1. Encrypt the password.
 - a. In BGS, open the **T4x Password Crypt** script.
 - b. Type **admin** in the **Password** box.
 - c. Click **Run**.



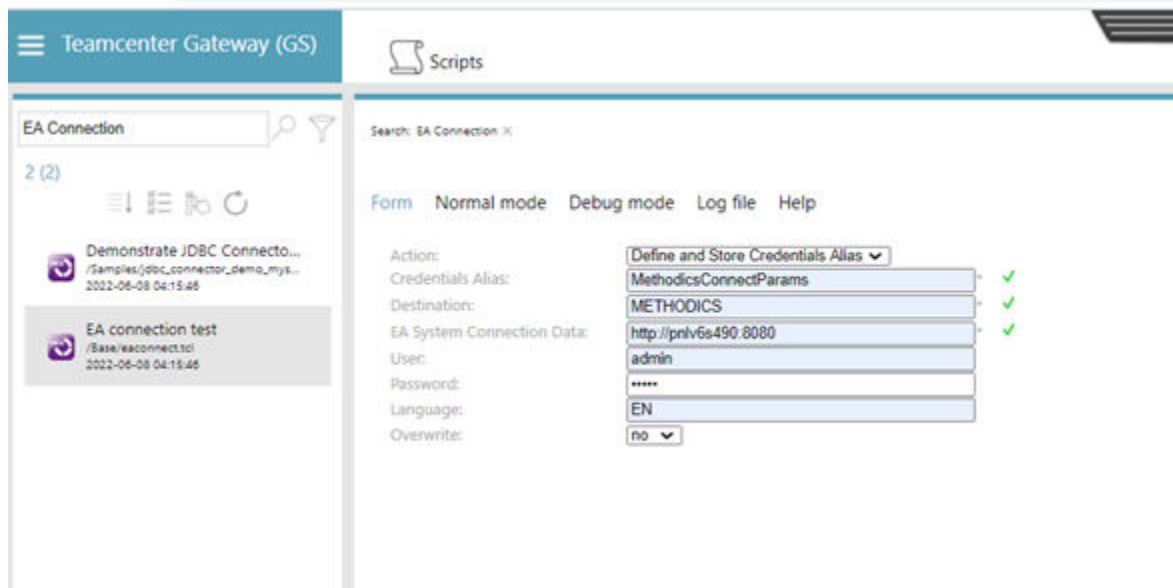
2. Update the mapping file.

Store connection information

In the GS administrator interface, run the EA connection test with the parameters as shown in the following graphic. For the **EA System Connection Data**, enter the URL where Methodics is available.

Note:

Type **METHODICS** in the destination box exactly as shown in the following image.



Add communication channels for Methodics in BGS and GS

1. In BGS, open the **Configuration** page.
2. Select the communication channel and click the plus (+).
3. Enter details according to the Methodics server information.

Note:

Type the channel **Name** exactly as shown in the following image.

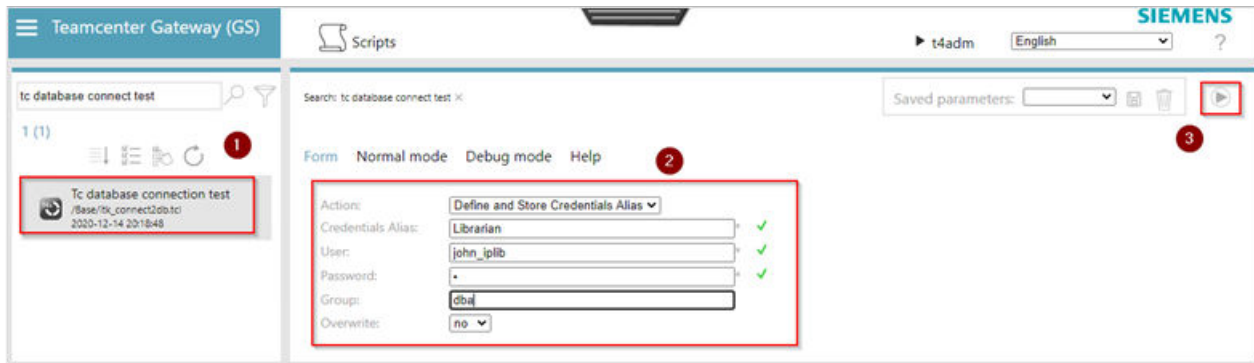
4. In the same way, add a communication channel in the GS server.

Create an alias

Register a Default and Librarian alias.

1. In GS, open the **Tc database connection test** script.
2. For the **Action**, select **Define Default Credentials Alias**.
3. Enter a username and password for the IP Administrator, and run the script.

4. Now enter a username and password for the Librarian, and run the script.



5. Open the `%TC_INSTALL_DIR%\ip0tc4ipmgmt\t4ea_configuration\GS\var\mmap\t4methodics_mapping_config\t4methodics_mapping_config.sd` file.
6. Make the following updates to the mapping file:
 - Specify the **TCServer HostName** in the **T4EA_Defaults(TCSERVERURL)** constant.
 - Specify the **TCServer PortNumber** in the **T4EA_Defaults(TCSERVERURL)** constant.

Example:

```
set ::T4EA_Defaults(TCSERVERURL) http://10.134.54.4:3000
```

Deploy the mapping files

1. Copy `%TC_INSTALL_DIR%\ip0tc4ipmgmt\businessdata\ip0tc4ipmgmt\install\t4ea_configuration\GS\var\mmap\t4methodics_mapping_config` and `%TC_INSTALL_DIR%\ip0tc4ipmgmt\businessdata\ip0tc4ipmgmt\install\t4ea_configuration\GS\var\mmap\t4ea_mapping_config` to `%GS_ROOT%\var\mmap`.
2. In GS, select **Generate mapping and mapping deployment**.
3. Select **Generate Mapping and Server Hot Deployment** for the **Mode**, and enter the deployment username and password.

5. Post install steps

The screenshot displays the Teamcenter Gateway (GS) web interface. The browser address bar shows `localhost:11321/#scripts`. The page title is "Teamcenter Gateway (GS)". The user is logged in as "t4adm" and the language is set to "English".

The main content area is divided into two panels:

- Left Panel (Scripts List):** A search bar contains the text "mapping". Below it, there are 4 results. The first result, "Generate mapping and mapping deployment", is highlighted. The other three results are "T4EA BOM mapping test", "T4EA mapping test", and "T4EA PLMXML mapping test".
- Right Panel (Form):** A configuration form for the selected script. The search bar shows "mapping x". The form has tabs for "Form", "Normal mode", "Debug mode", "Log file", and "Help". The "Form" tab is active. The fields are:
 - Mapping FileName: All
 - Mode: Generate Mapping and Server Hot Deployment
 - Gateway Server Connection ID: DEFAULT_WEB
 - Deployment User: t4adm (with a green checkmark)
 - Deployment Password: ***** (with a green checkmark)

6. Administer Semiconductor Devices Lifecycle Management

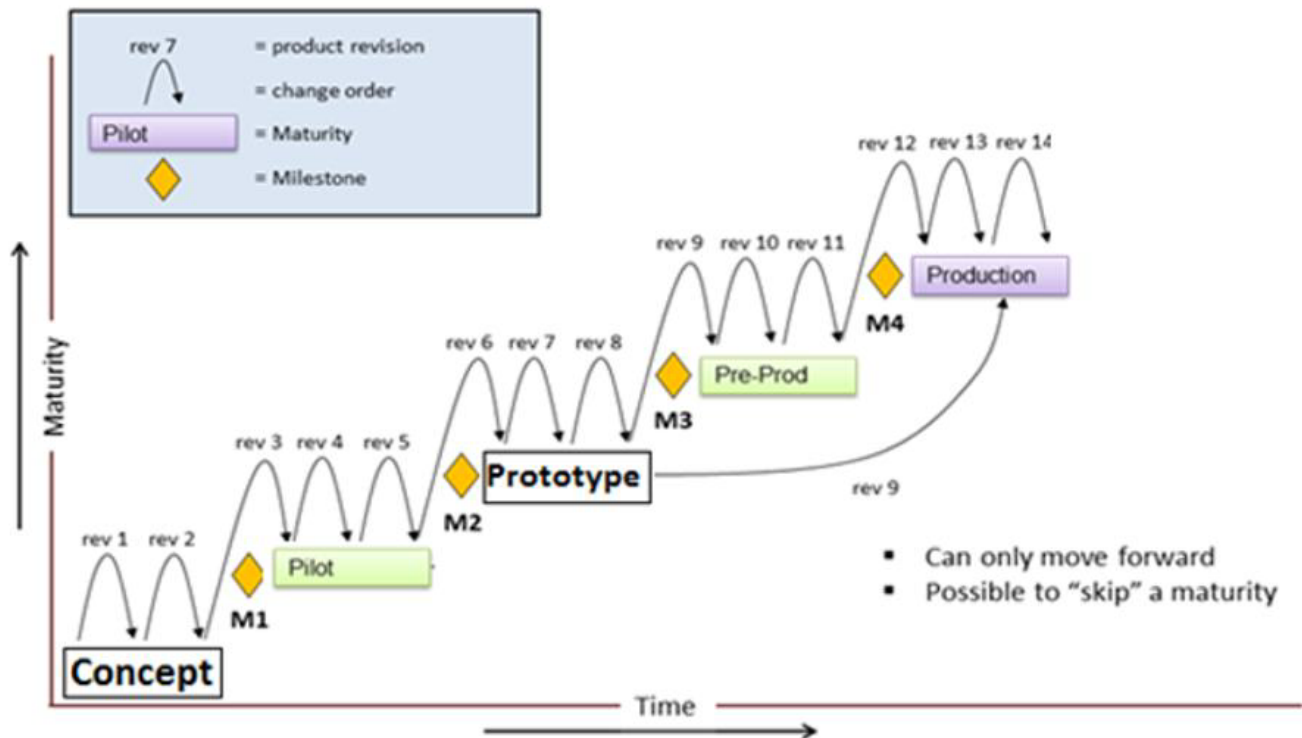
Maturity management

The Semiconductor Lifecycle Management solution enables you to control some capabilities by configuring them in Teamcenter.

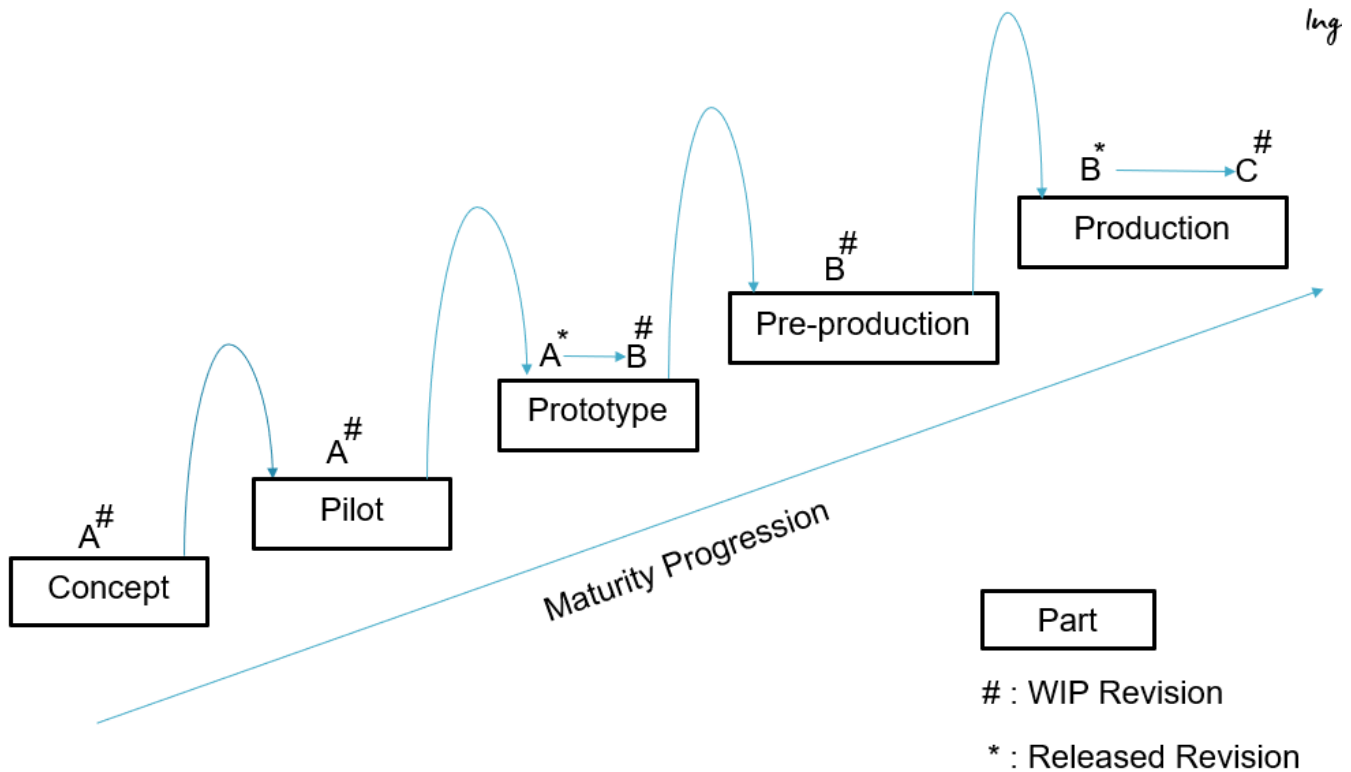
Maturity management

- Maturity describes the design maturity of a business object as it moves through its life.
- Maturity is a loose form of tracking the progression of a business object through its Maturity phases.
- Maturity and Release statuses may signify different levels of data sharing depending on the business rules of an organization.

For example, Maturity status **Pre-Production** may mean that the design organization can internally share data with its manufacturing organization, but the data cannot be shared externally with the suppliers unless it has been released with a Release Status of **Released**.



Example Maturity Progression for a Part



Progression rules

- For a specific business object, the evaluation of maturity progression should be configurable.
- Achieve configuration by the business object (BO) constant **Fnd0MaturityProgressionValidation**.

Values for the BO constant are:

1. No Maturity progression validation (default).
 2. Promote to any higher value and demotion is not allowed within the same working copy.
 3. Promote to any higher value and demotion up to based on previous revision's maturity value.
- The system performs the validation based on the **BO's** business constant value.
 - In the Semiconductor Lifecycle Management solution, all part revisions are configured with constant value **3**.
 - Idea, IP Object Revision, and Semiconductor Qualification Revision are configured with constant value **1**.

Part Maturity rules

1. A new revision of a part carries over the Maturity value from the previous revision.
2. Skipping maturity levels is allowed.

BOM Maturity rules

1. The parent cannot be more mature than any of its immediate children. Validation is done by a workflow handler. The workflow handler can be used in any BOM Review and Release workflows.
2. In the Semiconductor Lifecycle Management solution, the **Validate-assembly-maturity-progression** rule handler is used in the start of the root task for the **Mask Set Release Process**.

Handler	Workflow template used in
Validate-assembly-maturity-progression	Task:Start Mask Set Release Process :Root

Validate-assembly-maturity-progression

A rule handler to check the Maturity state of a parent cannot be more mature than the Maturity state of its children.

Arguments:

rev_rule — Specifies the name of the revision rule to be applied for BOM traversal. If not supplied, the default revision rule is used.

maturity_to_be_applied — Defines the Maturity state to be applied to the target object.

check_unconfigured — Returns **NO-GO** in case the applied revision rule on the assembly results in unconfigured children.

child_types_to_ignore — Defines the child types to be excluded from validation.

Project creation based on metadata

When a project is created, project parameters must be provided. The following image shows the method of configuring a project's properties using metadata.

The screenshot shows the 'PROJECT PROPERTIES' for a 'MEMS sensor SOC development' project. The 'Design Type' is set to 'Digital', 'Subcategory' to 'Complex Derivative', 'Category' to 'Product Development with Die Design', and 'Innovation Type' to 'Replacement'. The 'Is Strategic' property is set to 'True' and is circled in orange. The 'Complexity' is set to '70'. Callout boxes show the available options for each of these properties:

- Design Type:** Analog, Digital, Mixed Signal, FPGA
- Subcategory:** Super Platform (Product Development with Die Design), Product Platform (Product Development with Die Design), Complex Derivative (Product Development with Die Design), Simple Derivative (Product Development with Die Design), Spin-off (Product Development without Die Design), Digital Service (Design Service)
- Innovation Type:** Replacement, Market Risk, Breakthrough, Technology Risk
- Complexity:** 10 (Spin BOM Change), 50 (Simple Derivative - Stabilization), 60 (Complex Derivative - Stabilization), 70 (Complex Derivative - Technology Certification), 80 (Product Platform - Stabilization), 90 (Product Platform - Technology Certification)

There are many properties available on a project, such as **Design Type**, **Subcategory**, and **Innovation Type**. Another property that can be utilized is **Strategic**, which can be set to **True** or **False** and is used for prioritization and report filtering.

In many cases, prioritization is based on the expected revenue, the Net Present Value (NPV), or the Average Selling Price (ASP) of the product. However, there are some projects without a high NPV that are still a high priority. For example, foundation projects may be critical for use in other projects in the pipeline, so they must have high visibility and be executed on time.

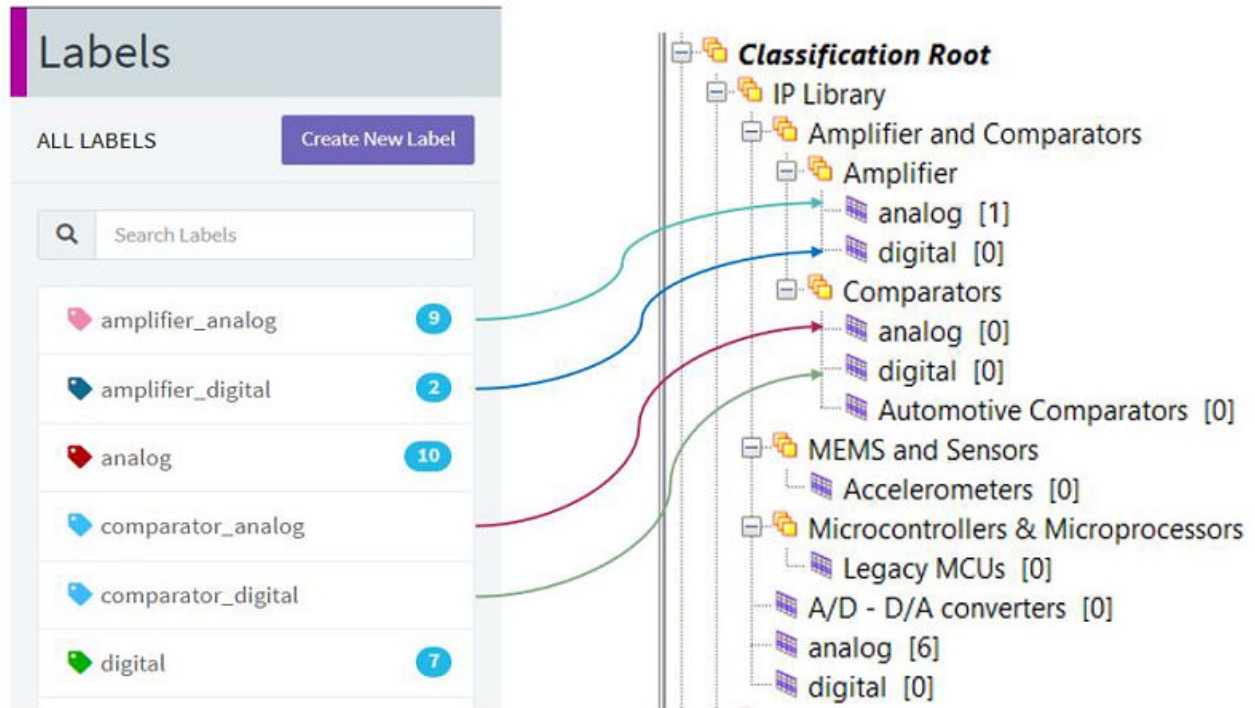
The **Strategic** property can be used for more flexible prioritization. A Top 10 Projects dashboard sorts by NPV by default, but projects with the **Strategic** property set to **True** may have equal priority. Dashboards can be configured to report based on your desired criteria.

These attributes drive the templates. You designate users to manage and enhance the templates based on your desired business process flows. Siemens Digital Industries Software has provided baseline templates and automated workflows to enable rapid deployment of the system.

Methodics configuration

This topic describes several data mappings from Methodics to Teamcenter.

- You can define the mapping of **Methodics** Labels and Teamcenter classification class IDs in the **IP_Classification_Class_id_mapping** preference.



- You can define the mapping of **Methodics** IP attributes and Teamcenter classification attribute IDs in the **IP_Classification_Attribute_id_mapping** preference.



- You can define the mapping of **Methodics** labels and **Methodics** properties set in the **IP_Label_Property_Set_mapping** preference. This preference is applicable only when exporting the **Bill of IP** defined for **Die Design** from Teamcenter.
- In the **Released_IP_Alias_Name** preference, you can define the released IP's alias name based on which IPVs should be imported to Teamcenter.

Test kit BOM validation configuration

Testing of semiconductors requires an electrical connection between the test head and the device handler. There are currently two methods used for coupling these two components:

1. "Hard" docking – Mechanical components physically lock the handler to the test head.
2. "Soft" docking – The test head and the handler are connected by a simple mating-type connector.

A connector is required in a test kit BOM only if there is a test interface board that contains "Soft" docking. There are validations to ensure this.

During addition or replacement of an item in a test kit, the validations ensure that a factory tool classified as a connector can only be added if the test kit BOM already contains an equipment item classified as a test interface board with the classification attribute **Docking Type** set to **Soft**.

The following preferences must be set to ensure the validations work correctly.

1. Set **Sfd0_Cable_Classification_ClassIds** to the classification class ID(s) of the **Cable/Connector** class.
2. Set **Sfd0_TIB_Classification_ClassIds** to the classification class ID(s) of the **Test Interface Board** class.
3. Set **Sfd0_DockingType_Soft_Name_Value** to the `name:attribute` value of the attribute that classifies a **Test Interface Board** as **Soft**.

Example:

DockingType:Soft

The screenshot shows a 'Hierarchy' window on the right and a table of attributes on the left. The hierarchy tree is as follows:

- SAM Classification Root
 - Guided Component Search (GCS) [0]
 - Classification Root
 - GTest
 - GTest_TestInterfaceBoard [1] (highlighted)
 - GTest_Connector [1]
 - GTest_ProbeCard [1]
 - GTest_WaferChuck [1]
 - IP Library
 - ResourceLibrary
 - Package Type
 - MRM Mapping Attribute Value Repla
 - Unit Definition Class [240]

The table on the left lists attributes and their values:

Sfd0_Cable_Classification_ClassIds	Site
Sfd0_DockingType_Soft_Name_Value	Site
Sfd0_Panel_Matching_Pattern_Required	Site
Sfd0_TIB_Classification_ClassIds	Site
Sfd0_marking_panel_content_schema	Site

The screenshot shows a table of attributes on the left and a detailed view of a classified test interface board on the right. The table lists attributes and their values:

SfdU_Auto_Classification_Class_Ids	Site
Sfd0_Cable_Classification_ClassIds	Site
Sfd0_DockingType_Soft_Name_Value	Site
Sfd0_Panel_Matching_Pattern_Required	Site
Sfd0_TIB_Classification_ClassIds	Site
Sfd0_marking_panel_content_schema	Site

The detailed view on the right shows the following information:

- Item ID: 000075/A;1-Classified Test Interface Board with Docking Type Soft
- Owner: User1 (user1)
- Date Modified: 26-Apr-2022 23:50
- Release Status: Type: Equipment Revision
- Properties:
 - Name: Classified Test Interface Board with Docking Type Soft
 - Description: This is a Test Interface Board with Docking Type Soft
 - Release Status: (empty)
 - Date Released: (empty)
 - Effectivity: (empty)
- Classification Properties:
 - GTest>GTest_TestInterfaceBoard
 - GTest_DockingType : GTest_Soft

You must design and implement a classification schema according to your specific requirements. If these preferences are not populated, then these validations will not occur.

Classify on Create configuration

The configurations described in this topic enable auto-classification.

You can configure the **Sfd0ClassifyBasedOnAttribute** business object constant on the revision type of the BO of the property. Auto-classification is performed on this basis.

The value of the business constant attachment is **Item:** *<propertyName>* if the property is on the Item of the object that is the basis of the classification. The value of the business constant attachment will be **ItemRevision:** *<propertyName>* if the property is on the Item Revision of the object that is the basis of the classification. OOTB values are shown in the following figures.

Sfd0AsmblyMatRevision

Business Object : Sfd0AsmblyMatRevision

Main Properties Operations Display Rules Deep Copy Rules GRM Rules Operation Descriptor

Details

Project: sfd0semiconductorfoundation

Name: Sfd0AsmblyMatRevision

Display Name: Assembly Material Revision

Storage Class: [Sfd0AsmblyMatRevision](#)

Parent: [CommercialPart Revision](#)

Item: [Sfd0AsmblyMat](#)

Form: [Sfd0AsmblyMatRevisionMaster](#)

Business Object Constants Localization

Business Object Constants

Name	Value	Overridden	Allow Mo...		Edit..
Sfd0ClassifyBasedOnAttribute	Item:sfd0AsmblyMatType	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	↑	Reset

Sfd0PackingItemRevision

Business Object : Sfd0PackingItemRevision

Main	Properties	Operations	Display Rules	Deep Copy Rules	GRM Rules	Operation Descriptor
Details						
Project:	sfd0semiconductorfoundation					
Name	Sfd0PackingItemRevision					
Display Name	Packing Item Revision					
Storage Class	Sfd0PackingItemRevision					
Parent	CommercialPart Revision					
Item	Sfd0PackingItem					
Form	Sfd0PackingItemRevisionMaster					
Business Object Constants						
Business Object Constants						
Name	Value	Overridden	Allow Mc			
Sfd0ClassifyBasedOnAttribute	Item:sfd0PackingMatType	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
				<input type="button" value="Edit..."/>		
				<input type="button" value="Reset"/>		

The **Sfd0_Auto_Classification_Class_Ids** preference should be configured with the mapping of attribute value and the classification class IDs used for auto-classification. The syntax of the preference value is **BoType:PropertyValue:Classification Class ID**.







Example:

Sfd0AsmbyMatRevision:Bond Wire:ICM040101

For auto-classification to be enabled on creation of a particular Item subtype, the extension **Sfd0ClassifyOnCreate** must be configured for the corresponding **ItemRevision** subtypes on the **IMAN_save** operation as a **PostAction** extension point.

The following example is the OOTB configuration for **Sfd0AsmbyRevision**.

Business Object : Sfd0AsmbyMatRevision

Main		Properties	Operations	Display Rules	Deep Copy Rules	GRM Rules	Operation Descriptor
<input type="text" value="iman_save"/>							
Name	Published	Overrida...	Inherited	Overridd...	Constant	Source	
 IMAN_save	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			Sfd0A	
<div> Operation Definition Extension Attachments </div>							
Name	Condition	Active	COTS	Template			
<ul style="list-style-type: none"> <ul style="list-style-type: none">  ItemRevision::setComplexProps_onS  ItemRevision::setInitialValues_onSav <ul style="list-style-type: none">  ImanItemRevP::c_save <ul style="list-style-type: none">  Fnd0SavePostActionProcessIRDC  Sfd0ClassifyOnCreate 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> isTrue <input checked="" type="checkbox"/> isTrue <input checked="" type="checkbox"/> isTrue <input checked="" type="checkbox"/> isTrue <input checked="" type="checkbox"/> isTrue 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> 	<ul style="list-style-type: none"> foundation foundation foundation foundation foundation sfd0semiconductorfoundation 			

Marking management

This section details the Marking Management configuration that is available to set up the Semiconductor Lifecycle Management solution according to your needs.

The Marking Template pattern can consist of combinations of the characters shown in the following table.

Character	Pattern match
&	Alphanumeric value
X	Uppercase alphabetic value or numeric value
x	Lowercase alphabetic value or numeric value
N	Numeric value
n	Numeric value
@	Alphabetic value
A	Uppercase alphabetic value
a	Lowercase alphabetic value

Character	Pattern match
U	Uppercase dynamic character
u	Lowercase dynamic character
D	Mixed case dynamic character
"string"	String delimiters. For example, if you want the word Part to appear in the naming rule, define it as "Part" in the naming rule pattern.
?	Any single character value
\	Escape the next character to have a literal meaning. This character is only required when using delimiters inside of other delimiters, for example, "A\"Special\"Name", which matches [A "Special" Name].

Marking Specification validation

You can control which type of Marking design revision can be attached to a Primary business object using the **Sfd0_Allowed_Marking_design_type** preference.

Panel Asset validation and content generation

The following configurable rules are provided on Marking SOA operations to meet the semiconductor industry process needs as defined in the solution guide.

- The operation validates the Marking specification value against the pattern defined in its respective marking template. You can turn the pattern matching check off or on using the **Sfd0_Panel_Matching_Pattern_Required** preference.
- You can change the schema for the generated XML file using the **Sfd0_marking_panel_content_schema** preference.